WHAT IS CLAIMED IS:

1. A method for detecting an end point comprising steps of:

providing a reference end point matrix in a plasma process;

detecting an illuminant intensities of at least two kinds of plasma species within different wavelengths at the beginning of said plasma process, and combining said illuminant intensities of at least two kinds of plasma species within different wavelengths for the elements of an initial matrix;

detecting said illuminant intensities of at least two kinds of plasma species corresponding to different wavelengths during said plasma process, and combining said illuminant intensities of said two kinds of plasma species within different wavelengths for the elements of a processing matrix;

calculating said initial matrix and said processing matrix to get an end point matrix, and said initial matrix times said end point matrix being said processing matrix; and

detecting said end point of said plasma process by comparing said end point matrix with a reference end point matrix.

2. A method according to Claim 1, wherein different rows of said initial matrix and said processing matrix present different kinds of plasma species.

3. A method according to Claim 2, wherein every row element of said initial matrix and said processing matrix includes the intensity of the same plasma within different illuminant wavelengths.

4. A method according to Claim 1, wherein said initial matrix and said process matrix include an plasma parameter row, and every element of said plasma parameter row is a plasma parameter of said plasma

process.

5. A method according to Claim 4, wherein said plasma parameter choose from a chamber pressure, a running amount of reactive gas, a RF power, a RF impedance, a RF matching capacitance, and a peak-to-peak voltage.

6. A method according to Claim 1, wherein detecting illuminant intensity of at least two kinds of plasma species within different wavelengths uses a charge coupled device (CCD) matrix of optical channel analyzer.

7. A method according to Claim 1, wherein a method of getting said reference end point matrix comprises steps of:

during a plasma test plasma process, detecting illuminant intensities of at least two kinds of plasma species within different wavelengths at the beginning of said plasma process, and combining said illuminant intensities of these two kinds of plasma species within different wavelengths for elements of a first matrix;

detecting illuminant intensities of at least two kinds of plasma species within different reflecting wavelengths during at the end of said plasma process, and combining said illuminant intensities of these two kinds of plasma species within different wavelengths for elements of a second matrix corresponding to said first matrix; and

calculating said first matrix and said second matrix to get said reference end point matrix, and said first matrix times said reference end point matrix is said second matrix.

8. A method according to Claim 1, wherein said plasma process is a plasma etching process.

9. A method for detecting an end point comprising steps of:

detecting a first matrix at the beginning of a test plasma process, said first matrix having plasma parameters of at least two kinds of plasma species within different wavelengths before etching;

detecting a second matrix at the end of said plasma process, and corresponding to said first matrix, said second matrix having said plasma parameters of said two kinds of plasma species within different wavelengths;

getting a reference end point matrix by calculating said first matrix and said second matrix, and said first matrix times said reference end point matrix being said second matrix;

during a plasma process, detecting plasma parameters of at least two kinds of plasma species within different wavelengths at the beginning of etching, and combining said plasma parameters of said two kinds of plasma species for elements of an initial matrix;

detecting said two kinds of plasma parameters of plasma species within different wavelengths during the progress of said plasma process, and corresponding to said initial matrix, combining said plasma parameters of said two kinds of plasma species within different wavelengths for a process matrix;

calculating said initial matrix and said process matrix to get an end point matrix, and said initial matrix times said end point matrix being said process matrix; and

comparing said end point matrix with said reference end point matrix to detect said end point of said plasma process.

10. A method according to Claim 9, wherein said different rows of said initial matrix and said process matrix present different kinds of plasma species.

11. A method according to Claim 10, wherein every element of every column of said initial matrix and said process matrix includes intensity of within different illuminant wavelengths of the same kind of plasma.

12. A method according to Claim 9, wherein said plasma parameter choose from a chamber pressure, a running amount of reactive gas, a RF power, a RF impedance, a RF matching capacitance, and a peak-to-peak voltage.

13. A method according to Claim 12, wherein detecting said illuminant intensity of said two kinds of plasma species within different wavelengths uses a charging coupled device matrix of an optical channel analyzer.

14. A method according to Claim 9, wherein said plasma process is a plasma etching process.